



Augmentative and Alternative Communication Clinical Assessment Project

(AAC CAP)

Protocol for Assessment of Children with Autism

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Instructions

Augmentative and alternative communication (AAC) evaluations for children with autism usually occur in a series of sessions. This protocol is designed to assist speech-language pathologists (SLPs) with the planning, implementation, data collection, and decision-making that comprise AAC evaluations. The protocol is divided into sections for pre-assessment interview, screening, and evaluation sessions. There is also [a glossary of terms](#), sections to assist identifying the features required in an AAC system, and tips for extended AAC system trials. As terms are used within the text of this document they have been hyperlinked to the glossary section for your convenience. It also may be helpful to have the bookmark pane visible to assist with navigation through the protocol.

It is VERY IMPORTANT to read through the entire protocol when planning your evaluation. Not every section will apply to every client, and some of the evaluation session tasks require materials to be prepared ahead of time.

The pre-session interview should be conducted in advance of the evaluation sessions, if possible, to assist with planning. Additional interview questions will be utilized during the actual evaluation session(s). The evaluation could occur in one session but is commonly split across several evaluation sessions. The evaluation does not have to be completed in a linear fashion starting at the beginning and working through every item in the protocol to the end. Activities in which you engage the child may cross evaluation areas. There does not have to be a separate activity for each evaluation area. The goal of this protocol is to help clinicians identify pre-session interview information, screenings that may need to be conducted, and essential information to gather. The more complete the information, the clearer the AAC evaluation results may be.

Pre-Evaluation Session Interview

The first section of the interview includes information that is essential for planning and completing the evaluation. Throughout the interview, be aware that answers given in one section may apply to other sections. Do not overburden the interviewee with excessive repetitive questions. However, try to fill in as much information as possible in each box based on the answers given. The purpose of the interview section is to gather information that will provide a starting place for the evaluation session. It is often helpful to get information from multiple sources such as the parent or caregiver, school personnel, or other professionals who work with the child.

Once you have completed the interview, you should begin to determine what areas will need to be screened and what the evaluation session will include. The information from the interview will be used to make decisions about screening items and essential evaluation elements.

[Click here to return to the interview section of the protocol](#)

Screening

The definition of screening for the purpose of this protocol is to determine if further evaluation is needed in the areas listed. The term screening is not meant to mean that these areas will not require in-depth assessment. Instead, the items in this section should be screened to determine their inclusion or exclusion in an evaluation session, which is dependent upon the individual characteristics of the person you are seeing. Some skills will not need to be assessed formally but should be considered informally. Screening items do not have to be conducted as separate activities within the evaluation session, but rather can be infused into other activities.

Additionally, you may gather some of this information from previous evaluations conducted by other professionals (e.g., reports).

[Click here to return to the screening section of the protocol](#)

Evaluation Session

Once you have completed the interviews, begin to determine what the evaluation session will include. Listed in this section are the areas to be assessed and methods to evaluate them. Use the information from the interview to make choices about the evaluation session trial items to be presented (e.g., use items of interest/motivating activities.) The information from the interview will be used to make decisions about screening items and essential evaluation elements. Adjusting the evaluation activities to make them simpler or more challenging will likely be needed based on the behaviors of the child. Be ready to adjust your activities and materials based on the child's response.

[Click here to return to the evaluation session section of the protocol](#)

Note

The pronoun they and its derivative forms is used in this protocol as a gender-neutral singular pronoun as deemed acceptable by The Cambridge Grammar of the English Language (Huddleston & Pullum, 2002).

[Pre-Evaluation Session Interview](#)

(If you need to review the instructions for this section, click on the link above)

1. Communication Needs

Gathering this information may help to determine what is important in each environment in which the child spends time. It will also help you identify the communication needs that are applicable in multiple settings. This information will help you determine the vocabulary needed by the child to communicate and prioritize what is most motivating and crucial.

- With whom does the child communicate?
- What environments is the child in during the day?
- What topics does the child need to communicate about?
- What languages are spoken in those environments?
- What language(s) does the child understand?

Whom did you interview? (check all that apply)

☐ Primary Caregivers ☐ Teacher ☐ Paraprofessional ☐ Other: _____

Record the results here:

2. Current Communication Skills

You will need to get an idea of the range of communicative functions that a child uses and the methods they use to communicate them. Be sure to gather information about behaviors the child may use to communicate (e.g., hitting, other unconventional behaviors).

- How does the child greet people, indicate farewell, respond to their name, let you know they want something, and initiate interaction?
- When does the child communicate most appropriately?
- When does the child communicate least appropriately?
- What do you do when you don't understand the child?
- What types of communication interventions have been used in the past?

Whom did you interview? (check all that apply)

☐ Primary Caregivers ☐ Teacher ☐ Paraprofessional ☐ Other: _____

Record the results here:

3. Language

This section will help you make decisions about the level of language to present during the evaluation. Below are suggested questions to ask.

- Receptive language:
 - What do you think the child understands?
 - Can the child follow directions?
 - How many step directions? Please give examples of directions the child can follow.
 - Do people use any cues to support comprehension (e.g., gestures)?
 - Does the child respond appropriately to questions? Provide examples.
- Expressive language:
 - Does the child currently use symbols or signs to communicate?
 - How many are used?
 - What type of symbols or signs do they use (e.g., color photographs, a pre-made symbol set)?
 - How are the symbols presented to the child (e.g., in a communication book, on a choice board)
 - Does the child combine words or symbols/signs?
 - Does the child express feelings?

Whom did you interview? (check all that apply)

☐ Primary Caregivers ☐ Teacher ☐ Paraprofessional ☐ Other: _____

Record the results here:

4. Motor Skills

As children with autism are typically able to [directly select](#) vocabulary, it is important to document any motor issues. Questions in this area serve a screening function to help you plan for the evaluation session.

- Does the child have any motor issues (e.g., coordination, motor-planning, sensitivity to touching things)? If so, describe.
- Is the child right or left handed?
- Does the child receive OT or PT services? If so, describe.
- Are there any positioning considerations for this child?

Whom did you interview? (check all that apply)

☐ Primary Caregivers ☐ Teacher ☐ Paraprofessional ☐ Other: _____

Record the results here:

5. Medical

The following questions will ensure that the evaluation is sensitive to the child's potential medical concerns. If the interviewee responds "yes" to any question, please have them describe their response in more detail.

- Does the child have any major health issues that significantly impact daily life?
- Does the child take any medications?
- Does the child have any dietary restrictions?
- Does the child have a tendency to fatigue easily?
- Does the child have any vision issues?
- Does the child have any hearing problems?

Whom did you interview? (check all that apply)

☐ Primary Caregivers ☐ Teacher ☐ Paraprofessional ☐ Other: _____

Record the results here:

Supplemental information to gather:

You should investigate these areas briefly or more in depth based on the information gathered in the first section of the interview.

6. Behavior

Many children with autism have challenging behaviors that serve a communicative purpose. AAC interventions can be used to replace these behaviors with appropriate communication.

- How does the child adjust to new people or environments?
- Are there any behaviors that are of concern?
 - What do you think are the purposes of these behaviors?
- What is soothing to the child when they are upset? You may want to suggest that the family bring these things with them to the evaluation session to help calm the child if they get upset.

Whom did you interview? (check all that apply)

☐ Primary Caregivers ☐ Teacher ☐ Paraprofessional ☐ Other: _____

Record the results here:

7. Play/Preferred Activities

This information about the child's play can provide information about activities to include in the evaluation and may provide insight into the child's [symbolic level](#). It can be helpful to suggest that the family brings one or two of the child's preferred items with them to the evaluation session.

- How does the child engage with peers/siblings?
- What activities or toys/items does the child enjoy?
- What are familiar activities that the child engages in willingly?
- What are some preferred food items?
 - Does the child have any food aversions or allergies?
 - Is it OK to use food during the evaluation?
- What is reinforcing or motivating for the child?
- What are things the child doesn't like?
- What is the child's experience with technology (e.g., iPad, computers)? How have they used them?

Whom did you interview?

☐ Primary Caregivers ☐ Teacher ☐ Paraprofessional ☐ Other: _____

Record the results here:

8. Literacy

Literacy skills are essential for individuals who use AAC. Individuals who are literate are viewed as competent. The ability to use the alphabet to code language allows the individual using AAC to generate any message they desire, and not be restricted to only using pre-stored messages. At this point in the assessment you want to get a sense of the child's literacy or emergent literacy skills. Further evaluation of literacy and literacy instruction can be pursued after the initial AAC evaluation. See the [Resources](#) section for information on literacy curricula for children who use AAC.

The following questions may be helpful to determine the child's current literacy skills

- Does the child seem attracted to or interested in books?
- Does the child spontaneously pick up a book? Do they turn pages?
- How do they interact when you read to them?
- Does the child know their letters?
- Do they know letter sounds?
- Do they recognize sight words?
- Are they reading sentences?
- Can they spell?
- Overall, where do you think the child is at?

Answer these questions:

Does the child have the ability to use text to communicate?

Consider literacy skills in light of their potential to improve AAC systems.

What further literacy assessment and instruction should be pursued?

9. Funding

You should be prepared to discuss funding issues as you present AAC systems to the team/family; therefore, this information needs to be gathered so it can be discussed during the evaluation session. It may be collected as part of intake paperwork instead of covered in the interview.

- What type of insurance does the child's family have (e.g., primary, secondary)?
- Has the family investigated whether their insurance covers a speech generating AAC system? For example, does the policy cover the SGD code E2510 under "durable medical equipment"?
- Do they know if there is a co-payment required?
- What backup funding resources does the family have (e.g., health care savings account, state sources, civic/charitable organizations)?

Whom did you interview? (check all that apply)

☐ Primary Caregivers ☐ Teacher ☐ Paraprofessional ☐ Other: _____

Record the results here:

10. Experience with technology

As you interview individuals involved with the child, try and ascertain their comfort with technology and their preferences. You will use this information to make decisions about what training may be necessary for family members and team members to support the child's communication system. Information about the child's experience with technology may help you determine how to introduce the AAC system trials. Ask the following questions of the child's primary caregivers and team members:

- What type of technology do you use on a daily basis (e.g., computer, smart phone, iPad)?
 - What platforms do you use (i.e., Mac vs PC, Android vs iOS)
 - What types of apps or programs do you use for each (e.g., email, text, web browsing, games)?

What experience with technology do the family members have?

What experience with technology do the team members have?

- What types of technology does the child have experience with (e.g., computer, tablet, smart phone)?
 - What games or apps do they use? Do they use them appropriately and purposefully?
 - Do they know how to open different programs (i.e., do they know what the different icons mean)?
 - Do they know how to change settings or other features?

What experience with technology does the child have?

Screening

(If you need to review the instructions for this section, click on the link above)

1. Behavior

If behavior was indicated as a problem in the interview, there are additional things you may need to do during the evaluation. Even if not discussed in the interview, you may become aware of behavior issues during the session and need to evaluate this area.

As a reminder: Behaviors can sometimes be communicative. AAC interventions can be used to replace these behaviors with appropriate communication.

Observe for maladaptive behaviors (e.g., head banging, rocking) during the evaluation. Record the information below, use extra pages as needed.

- List the context of the behavior
- List what happened immediately before the behavior
- Do you believe the behavior was the child's attempt to communicate one of the following:
 - Gain attention
 - Gain something tangible
 - Escape an undesired task
 - Need for sensory stimulation (Durand & Crimmins, 1988)

Note: To prevent behaviors from occurring or escalating, allow the child time to calm if they show frustration and give them time to return to the activity on their own.

Behavior 1

☐ Gain attention ☐ Gain something tangible ☐ Escape an undesired task ☐ Need for sensory stimulation
(Durand & Crimmins, 1988)

Behavior 2

☐ Gain attention ☐ Gain something tangible ☐ Escape an undesired task ☐ Need for sensory stimulation
(Durand & Crimmins, 1988)

Behavior 3

☐ Gain attention ☐ Gain something tangible ☐ Escape an undesired task ☐ Need for sensory stimulation
(Durand & Crimmins, 1988)

If there is a clear indicator of what the child is trying to communicate with the behavior, you should initiate an evaluation session trial to determine if the behavior can be replaced with AAC. For example, can the child use a gesture to request something, use a BigMack™ switch with the message “I need a break,” or hand a picture symbol to the clinician? Remember the principles of *equivalency* and *efficiency* – the communicative behavior being taught needs to be as (or more) effective and as easy to perform as the challenging behavior. (Carr & Durand, 1985)

Results of evaluation session trial:

What was the behavior?

How did you replace it?

What was the result?

Many general assessments for autism include information about behavior. If previous testing has been completed, review these results for descriptions of challenging or maladaptive behaviors. A list of common assessments for autism is presented in the [Resources Section](#).

What testing has been completed and when were they given?

What behaviors were noted in these assessments that may impact potential AAC use?

2. Play, Preferred Activities, and Reinforcers

Evaluation of play skills may not always be necessary. The purpose of this assessment is to gain a sense of the child’s developmental/cognitive level and interests. Knowledge of development/cognition may assist you in determining how complex the AAC communication system can be. Interests should be surveyed to determine what is motivating for the child.

Present a variety of different toys/activities. Make a note of the following:

Does the child engage?
Who do they play with?
What do they spend their time playing with?
Do they play cooperatively?
Do they engage in [parallel play](#)?
Do they use [imaginative play](#)?

A checklist can also be used to determine reinforcers for the child. An example can be found at http://www.sesa.org/pub/MD/Trainings/Behaviors/REINFORCER_PREFERENCE_ASSESSMENT-ELEMENTARY.pdf

3. Sensory-Perceptual Skills

Vision: Review case history and records and interview informants to determine if there are any concerns about the child's vision. If there are concerns, [functional assessment](#) using AAC materials may be conducted to determine the size, spacing, arrangement, and positioning of symbols and the communication system.

The evaluation may be performed using low tech or high tech materials. You will need to create a variety of boards to evaluate the following:

- Symbol size - Ask the child to point to symbols (or targets) of varying sizes. Be sure that the vocabulary and symbols used are highly familiar to the child.
- Spacing - Change the amount of space between the symbols
- Contrast - Adjust background color or color prominence of the symbols

Additional resources to consider:

- *Test of Aided Symbol Performance* (TASP, Bruno, 2006) <http://www.mayer-johnson.com/tasp>
- *AAC Evaluation Genie* <https://itunes.apple.com/us/app/aac-evaluation-genie/id541418407?mt=8>

Hearing: Review case history and records and interview informants to determine if there are any hearing concerns. If there are concerns, conduct hearing screening.

Other Sensory skills: You may need to consult with an occupational therapist, other professionals, or parents/caregivers to determine if the child has other sensory issues that may affect the selection of an AAC system.

Results:

Answer these questions:

Do you have concerns about the child's vision? If so, how may it impact AAC selection?

Do you have concerns about the child's hearing? If so, how may it impact AAC selection?

Do you have concerns about the child's other sensory skills? If so, how may it impact AAC selection?

4. Speech

If the child uses any natural speech to communicate, you should gather a sample of their speech use in context. This information will help you determine intelligibility and what vocabulary may be communicated via [unaided means](#).

Results:

How functional is the child's speech for daily communication?

[Evaluation Session\(s\)](#)

(If you need to review the instructions for this section, click on the link above)

1. Communication Needs

There are many ways to assess communication needs. From the suggestions provided below, pick those that best fit your situation. It may be helpful to collaborate with family members or other professionals to gather this information. You may use this information to determine what kind of vocabulary the child will need to increase their participation.

- Go back to the results from the interview. What environments is the child in and what do they need to communicate in those situations (e.g., greetings, comments, asking questions)?

Results:

- Observe the child and their peers; note the topics of their conversations. Be sure to include social communication and not just requesting wants and needs.

Results:

- You may want to conduct [ecological inventory\(s\)](#) of critical environments (e.g., situations where the child is frequently, which are highly motivating or present the best opportunities for AAC introduction). To conduct an ecological inventory, create a table with at least three columns (for an example see page 238, Beukelman & Mirenda, 2013). In the first column, list the skills performed by a peer engaging in the activity, in the second column, record how the target child participates. Examine the differences between the peer and target child's participation and identify potential communication adaptations needed to increase the child's participation. List these in the third column. Be sure to note any environmental factors that impede or support communication.

Results:

2. Motor-Access

The primary deficit in autism is not a motor impairment, but it is important to look at the child's motor skills and how they will access an AAC system. Based on the information gathered from the interview, determine if additional evaluation of motor skills is needed. If so, consult with an occupational or physical therapist.

- Some criterion-referenced measures may evaluate motor skills (e.g., Psychoeducational Profile, Vineland Adaptive Behavior Scale). If you have access to such tools, you may choose to use them as a means to assess motor skills.

Informal Assessment. Based on the information from the interview, you will formulate access methods that may be successful (e.g., direct selection by pointing). During AAC system trials (described below) assess the accuracy and efficiency of these access methods.

Results:

Mode of Access:

Accuracy:

Efficiency:

3. Symbol Representation

The purpose of symbol assessment is to determine the types of symbols that will be included in the AAC system. The goal is to identify the symbol set that is highest on the [iconicity hierarchy](#) and is, therefore, the least restrictive. The primary consideration when selecting symbols must be appropriateness regarding cognitive and conceptual abilities.

Criterion Referenced

Some criterion-referenced measures may address the child's ability to use items symbolically (e.g., Communication and Symbolic Behavior Scale Infant and Toddler Checklist). Information about pretend play or functional object use can guide assessment of symbolic skills. The ability to engage

in pretend play and use objects representationally indicates that a child may be able to apply this skill to symbols in an AAC system.

Observation

If a child is already using some form of communication system (e.g., PECS), observe what type of symbol set they are using. Observe the child to determine if they appear to understand the meaning of the symbols. For example, does the child engage in any activities that require sorting of objects or pictures? The ability to sort by category may indicate some representational ability.

Dynamic Assessment of symbols

Select symbol set(s) to assess. You may approach this in one of two ways. Start with the most iconic representation (i.e., objects) and progressively decrease the iconicity of the symbol sets (i.e., photographs) presented until the child is unsuccessful. In contrast, you can select a symbol set in the middle of the [iconicity hierarchy](#) (e.g., line drawings) and move up or down the hierarchy depending upon the child's performance.

Complete teach/test activities. Within the symbol set being evaluated, present symbols representing a range of concepts and language categories (e.g., nouns, verbs, adjectives). Make sure these are words with which the child is familiar. Label the symbols for the child as they are introduced. Use one of the following test activities to assess the child's ability to learn and use the symbols.

- Receptive language task: present an array of symbols to the child. Ask them to "show me ____."
- Yes/no task: Show a symbol to the child and ask, "Is this a ____?"

If the child is not able to do one of the above two tasks, then use a visual matching task.

- Show the child an object and have them match it to a corresponding symbol

The activities discussed above do not evaluate the child's use of symbols in a communicative task. Therefore, it is important to include one of the following activities to assess functional use of the symbols.

- Question/answer task: Engage the child in conversation. Ask questions that require the child to use the symbols to respond (e.g., what is your favorite color?)
- Request task format: The child must use symbols to request preferred items or activities.

Results:

What type(s) of symbols was the child successful with?

Extended AAC system trial

Ultimately the answer to which type of symbol is best will only be answered by observing how readily the child learns to use symbols within a communication system over an extended period. You may need to adjust the types of symbols used during extended trials. When recording the results, be sure to include descriptions of the types of symbols the child used and how they used them to communicate in functional contexts.

Results:

How did the child use symbols in functional contexts?

4. Current Communication Skills

During the evaluation session(s), you will create opportunities to observe the child's current communication skills. Observe the child's communication with and without AAC. Observing both conditions is done to help you form a list of potential AAC strategies and systems, both low and high tech. Listed below are various methods that can be utilized to obtain this information. Select those methods that are best suited to the circumstances. As you complete this section of the evaluation, it is important to focus on the child's strengths and what can be enhanced rather than the child's deficits.

Interview

Collect information from parents, teachers, and others who interact with the child about how the child communicates, the communicative acts (intent) they have observed the child use, and the child's language level. It might be helpful to ask questions such as: "What do you do when you can't understand the child? What does the child do when they can't understand you?"

If an interview has been conducted, consult that section of the protocol to gather this information. Be sure that all possible informants have been considered. Additional interviews may be necessary.

- Sigafoos et al. (2000) have provided an inventory of potential communication acts designed to identify pre-linguistic behaviors. If the child being evaluated is pre-linguistic, this may be a useful resource.

Results:

Dynamic Assessment of Current Communication Skills

During a [dynamic assessment](#), you are evaluating the child's ability to learn. This is accomplished by presenting a task, observing the child's response, teaching the task, then reassessing the child's ability. Be sure that the dynamic assessment includes both low and high tech materials; this allows you to determine the potential communication skills of the child when high technology solutions are available and when they are not. Dynamic assessment may help you establish a starting point for functional interventions with AAC strategies and systems.

Individualized Activity. Based on the information gathered from the observation and interviews, construct activities that are highly motivating to the child based on their preferences and cognitive abilities. Choose activities that can promote a variety of communication functions and purposes. For example, if the child was highly motivated by trains, you might engage the child in an art activity about trains.

General Activity. Choose an activity that is commonly available and appropriate for age-matched peers (e.g., Legos, board game, playdoh). Again, select activities that are amenable to a variety of communication functions and purposes. The techniques listed below should be utilized in the teaching trials.

Evaluation Session Trials. During the evaluation, you will want to engage in trials of various techniques and AAC systems to determine the child's communication skills. Be sure to examine several AAC systems that are appropriate for the child. AAC strategies should be introduced into the activity to assess the child's ability to use AAC across a variety of communicative functions and purposes (e.g., comments, information transfer, requests).

Based on the train activity discussed above, the following techniques could be utilized:

- Closed set question – e.g., point to AAC board and ask “Do you want the glue or crayons next?”
- Command – e.g., tell the child, “Press the button that says glue.”
- Comment – e.g., using the AAC board say, “I like that blue one.”

- Modeling – e.g., using the AAC system, pause expectantly, wait for the child to use the system, model again if needed
- Open-ended question – e.g., ask the child, “Which train do you want?” Use point cues if necessary to encourage a response.
- Parallel talk – e.g., comment on what the child is doing (e.g., “I see you put the blue engine next to the red boxcar.”)
- Reinforcement – e.g., “You used the talker to tell me that. I understood that!”
- Sabotage – e.g., hiding or removing an item that will be needed to perform the task.
- Scaffolding – providing verbal and physical assistance to communicate using the AAC system, e.g., pointing to the item on the AAC system, physically assisting the child in accessing the AAC system.

If you need assistance to select activities for the evaluation session trials, you may find the website [PrAACtical AAC](#) very useful. Additionally, data collection forms and checklists are available at this site.

Session Trial 1:

System Utilized:

Data Collected:

Impressions:

Session Trial 2:

System Utilized:

Data Collected:

Impressions:

Session Trial 3:

System Utilized:

Data Collected:

Impressions:

Standardized Tests

While standardized testing is not required to complete an AAC assessment, some clinicians may find the results of formal testing helpful to assess current communication skills. Data obtained from these tests should be interpreted in light of their application to AAC systems used by the child with autism.

A list of some standardized tests that can be used to assess current communication skills are provided in the [Resources](#) Section. Please note this is not an exhaustive list, but is representative of what has been referenced in the research literature.

Discuss the implications of standardized testing results on the prescription of AAC systems and future intervention:

Observation

During the evaluation session trial, observation may be useful in determining current communication skills. Unstructured free play can be used for this purpose. Additionally, snack time and small group instruction could be observed. Make a note of:

- eye contact,
- joint attention,
- requests
- modes of communication used (facial expression, gesture, vocalization, signs, speech, low tech, high tech)
- turn-taking,

- initiation/response patterns,
- communicative functions,
- social interaction: verbal or non-verbal behaviors produced by the focus student toward a specific person
- spontaneous or prompted communication
- communication purposes (i.e., expression of needs and wants, social closeness, information transfer, social etiquette; Light, 1988)
- behaviors of communication partners that support or impede the child's communication

Results:

What current communication skills were observed?

Communication partner skills:

Impressions:

5. Language

Understanding the receptive and expressive language of children with autism may help in determining the AAC system design and vocabulary. Assessing the child's language skills can be accomplished in a variety of ways. You should choose a method from those listed below that is most pertinent to their situation and setting.

Standardized Tests

Results from standardized language tests may exist from previous evaluations. If standardized testing is possible, a variety of language tests are readily available. Use the results of these tests to determine the following:

- What level of vocabulary can the child understand?
 - This information will help inform what level of vocabulary should be included in the child's AAC system.
- What types of sentences does the child understand? (e.g., syntax and morphology)
 - If a child can comprehend a variety of morphological and syntactic structures, they may be able to use an AAC system that gives them access to these structures.
- What is the level of the child's verbal expression?
 - If a child attempts to string unintelligible words together, this may reflect their ability to combine symbols on an AAC system.

Informal Assessment

Many clinicians have informal language assessment probes that they typically use with their clients. They may also conduct systematic observations of receptive language performance in daily interactions to observe for evidence of comprehension in functional context. Both probes and observations may be used in the evaluation session with the child. The results should be interpreted in light of the same questions asked in the standardized test section above.

Results:

What vocabulary can the child understand?

What types of sentences does the child understand?

What is the level of the child's verbal expression?

Observation

Observe the child's receptive language skills within the context of daily interactions. Make a note of the types of utterances the child understands (e.g., vocabulary, multi-step commands, questions) and any contextual supports that assist with language comprehension.

Look at the results of your observation of current communication skills and determine if additional observation of expressive language is needed.

Results:

What vocabulary can the child understand?

What types of sentences does the child understand?

What is the level of the child's verbal expression?

Interview

Review the results of the language assessment thus far and determine if additional interviews are needed to clarify information about the child's language skills and how they may impact AAC assessment and intervention.

Additional information you have obtained regarding language skills:

Dynamic Assessment of Language

The purpose of dynamic assessment in this part of the evaluation is to identify how AAC strategies can support the child's language expression and comprehension. Try a variety of [storage and release strategies](#). The activities below are presented in a hierarchy from simplest to most difficult. Attempt each, but focus evaluation time on the areas where the child shows some skills but requires scaffolding. Tasks they can already do are too simple; tasks they cannot do at all are too hard.

You can incorporate the assessment tasks described in the section of the protocol regarding [array size](#) during these activities.

[Whole message storage and release](#). From the initial interview, prepare communication displays (high and low tech) that communicate whole phrases or sentences to be used during individualized or generalized activities. Using the train activity described above, you might have a board with phrases such as, "I need the glue," "this is fun," "please help me," "Do you like this one?" Model use of the board during the activity while you are speaking and note if the child begins to use the symbols to communicate without cueing. If they do not, provide cues to scaffold their participation (e.g., gesture towards the communication board, point to the appropriate symbol that the child should use, provide hand over hand assistance)

[Word by word storage and release](#). From the initial interview, prepare communication displays (high and low tech) that require the child to combine symbols to communicate a message (e.g., "I need" "I like" + "glue" "paper" "scissors" "red" "blue" "green"). Model use of the board during the activity while you are speaking. Note if the child begins to combine symbols to create a message without cueing. If they do not, provide cues to scaffold their participation (e.g., gesture towards the communication board, point to the appropriate symbol that the child should use, provide hand over hand assistance).

[Navigation through multiple pages in AAC system](#). To determine navigation skills, prepare communication displays (both high and low tech) that require the child to navigate through multiple

pages. For example, create a home page that shows the different activities you have prepared for the assessment (e.g., bubbles, train, Legos, art, snack). Have vocabulary for each activity on a separate page. Require the child to navigate from the home page to the page with the appropriate vocabulary.

If the child is not able to combine symbols, navigation may be difficult for them; be prepared to provide support. If navigation is difficult, initial AAC trials should focus on simple symbol combinations.

Results:

What storage and release strategies were most effective for the child?

How many pages can the child navigate? What support or cues are needed?

Based on all the results from the language section, what are the implications for AAC?

Consider how much language is represented in the system. Can the child start to combine symbols to create utterances? What messages may be better stored as whole phrases? What influenced the decision about how messages should be stored? Remember, a variety of message representations can be used within the same AAC system (e.g., whole message release, core vocabulary strategies). The results from this section of the assessment represent the best estimate of where to start, but the extended AAC system trials may cause you to change this decision.

Results:

6. Cognition

Assessment of cognition may help you to determine the organizational layout of the AAC system. Looking at the child's learning style will also help you plan intervention.

Standardized Tests

If you have access to standardized test results, this will provide information about the child's functioning level and intellectual potential, which may assist in setting long-term goals and objectives. However, it is important to note that there are few standardized measures that will truly reflect the cognitive functioning of a person with autism. Formal test results need to be supplemented with dynamic assessment and observation to assess the child's learning style.

Impressions of child's attention, memory, and problem solving and how this may impact AAC system selection and intervention:

Dynamic Assessment of Cognition

- *Try out different organizations of vocabulary.* Vocabulary in AAC systems can be organized in [grids](#), [visual scenes](#), or [hybrid displays](#). Within grid displays, vocabulary can be further organized into [semantic-syntactic](#), [activity](#), or [categorical configurations](#). Create displays for a variety of activities using a range of organizations based on the child's cognitive characteristics. Generally speaking, children with lower levels of symbolic ability would start with visual scenes and activity based displays; however, it is important for you to investigate additional types of organizations that will allow for maximizing language acquisition and use.

If the child has difficulty navigating different organizations of vocabulary, assessing their ability to match and sort may be valuable. Information about their categorization skills may be useful in understanding how to organize the vocabulary in an AAC system.

- *Informal assessment of matching and sorting.* Gather a range of pictures or objects that represent members of related (e.g., farm animals and zoo animals) and unrelated (e.g., animals and food) categories. Have the child sort the items into categories. Allow the child to see all of the items before they begin sorting or provide an exemplar. Information regarding sorting may inform you about how the child will be able to locate messages within the organization of the system.
 - Observe how the child learns new tasks within the evaluation and other contexts (e.g., classroom).
 - Observe what kinds of prompts and cues are helpful to the child
 - Observe whether the child can self-correct
 - Note what type of error patterns the child makes

Impressions of the child's learning style and categorization skills as they relate to AAC vocabulary organization:

7. AAC system Features

Portability and Durability of AAC System

You should consider the portability and durability of the AAC system in light of the child's unique needs. Portability refers to the size and weight of the system but also to how the child will transport it. Some children with autism may need to be taught to carry their AAC system. You may need to consider the durability of the equipment if the child exhibits behaviors that may damage it.

- Observe the child for initiation of carrying or transporting the AAC system, prompt/cue as needed
- Refer to the information from your interview to determine where the child will need to transport the AAC system.
- Interview caregivers to determine their opinions about how the child would transport/carry the AAC system.

AAC system Features necessary to ensure portability:

[Access](#)

Refer to the motor/access portion of the evaluation to determine how the child will access the AAC system.

AAC system Features necessary for access:

[Array size](#)

Because symbols must be displayed within a constrained physical space, the characteristics of the array are important. The child's vision, motor skills, and cognition will all influence characteristics of the array. Be sure to consider the size of the symbols, the number of symbols per page, and spacing between symbols. To accomplish this you will need to create layouts that vary across the aforementioned variables. The factors you are considering regarding array size can be infused into the procedures previously discussed for [dynamic assessment of language](#). While completing these trials, track the type and amount of cueing needed by the child for the various arrays.

Interviewing other professionals about their opinions on the array may also be helpful.

Necessary features of the array:

[Navigation-Organization](#)

Refer to the sections of the evaluation on cognition and language. From the cognition section note which type of vocabulary organization with which the child was most successful. Also, make note of how many pages the child was able to navigate (language section). You may wish to interview others regarding their opinion on what type of organization would be best for the child.

Required features for organization of vocabulary and navigation:

Vocabulary

Refer to the sections on communication needs and language from the interview and evaluation. Determine the nature of vocabulary needed ([core or fringe](#)), including words or phrases to facilitate social interaction. Establish the length of messages needed (i.e., word- or phrase-based). Estimate how the child's language will develop once they begin using an AAC system; and how much room for growth and expansion will be needed to accommodate the child's language development. Consider what [rate enhancement](#) strategies would be beneficial for the child (e.g., [whole message storage and release](#), [word prediction](#)).

Types of vocabulary required in the system:

Rate enhancement features:

Funding

Reconsider the information about [funding](#) from the interview, as the type of funding a child has may influence AAC system selection.

Feature Matching

Using the information gathered from the summary boxes above, compile a list of required features and desired, but non-essential, features of the child's AAC system. Match these features to available AAC systems. There are tools available to help you perform this task; below are some resources.

<http://www.rockybay.org.au/wp-content/uploads/2013/04/3b-AAC-Feature-Match-Checklist.pdf>

If you are considering apps, an additional resources are available at the following links.

<http://www.childrenshospital.org/centers-and-services/augmentative-communication-program/downloads/app-and-clinical-feature-matching-handouts>

<https://proactivespeech.wordpress.com/2012/07/24/quick-feature-matching-checklist-for-ipad-apps/>

http://www.faast.org/sites/default/files/Crawford_Watson-Apps_Feature_Comparision-AAC.pdf

Extended AAC System Trials

It is important to evaluate the use of the AAC system(s) under consideration and required features in functional communication tasks over an extended period. Investigate how to obtain equipment or software using loan programs in the local area. Some manufacturers may have procedures for obtaining loaner equipment. Client and family member preferences should play a role when making the final recommendations.

Description of extended AAC system trials and how child used the system:

Glossary

Access: Evaluating a client's use of different selection methods. Information about fine motor skills or AAC system access.

Activity grid displays: Displays organized in a grid which contain vocabulary items that are related to a specific activity (e.g., Birthday party) or to certain routines within that activity (Going to the Party, Eating Cake, Opening Presents, and Playing Games).

Array size: The amount of information in the selection set, related to the number of pictures or words presented at one time.

Categorical configurations: Vocabulary organized by hierarchical semantic categories.

Core vocabulary: Words and messages that are commonly used by many individuals and frequently occur across contexts.

Direct selection: When the person using AAC indicates the desired item directly from the selection set through finger pointing, touching, using an optical pointer, using a light pointer, head tracking, eye tracking, pointing their gaze to indicate their choice, or using speech recognition.

Dynamic Assessment: Evaluating skills within a functional context and/or manipulating variables to evaluate the effect on the AAC users' performance.

Ecological inventory: A tool for gathering information for identifying vocabulary needs through systematic task analyses of routines and activities; similar to an environmental inventory.

Evaluation session trial: Trying an AAC system or AAC technique during the evaluation session.

Extended AAC system trials: Engage in a period of diagnostic therapy or extended AAC system loan to evaluate the individual's use of an AAC system over time.

Feature matching: A process in which an AAC user's current and projected needs are matched to features of AAC symbols and AAC systems. Because no AAC symbol set/system may have all the desired features, selections that have the most desirable features for an AAC user's needs are made to achieve "goodness of fit."

Fringe vocabulary: Refers to vocabulary words and messages that are specific or unique to an individual (e.g., names of specific people, locations, and activities as well as preferred expressions). These words personalize the vocabulary in the AAC system and allow expression of ideas and messages that are not in core vocabulary lists.

Functional Assessment: Assessment using AAC materials in a communicative context

Grid displays: Elements are typically individual symbols, text (words/phrases) or pictures that are arranged in rows and columns.

Hybrid displays: Refers to electronic fixed displays with a dynamic component, such as indicator lights that inform the individual which items in the selection set are available for activation; Another hybrid display occurs when symbols can be organized on both grid and scene displays that appear together.

Iconicity: A term that refers to the visual relationship between a symbol (manual sign or graphic symbol) and its referent.

Iconicity hierarchy: One end of the hierarchy, symbols are transparent (i.e., the referent is depicted in a way that the meaning of the symbol can be easily guessed). At the other end of the hierarchy, symbols are opaque (i.e., no symbol-referent relationship is perceived even when the meaning of the symbol is known). For example, a picture of a shoe is transparent, and the word shoe is opaque.

Imaginative play: When children role play and act out various experiences they may have had or something that is of interest to them. They practice decision making and social skills in this type of play.

Navigation: Moving from page to page in an AAC system.

Parallel play: when children engage in independent activities alongside other children that are similar but not shared with the other children. There is little interaction with each other.

Rate enhancement: Strategies and features of AAC systems that are designed to increase communication rate.

Selection set: the visual, auditory, or tactile presentation of all messages, symbols, and codes that are available at one time to a person who relies on AAC.

Semantic-syntactic grid displays: a type of grid display organizing vocabulary items according to the parts of speech and their relationships within a syntactic framework, often color coded by category to allow easier visual access.

Storage and release strategies: How information and messages are stored in the AAC system and how the individual has to select items to retrieve them

Symbolic level: Level of use of symbolic behaviors (gestures, play, language)

Visual scene displays: A picture, photograph, or virtual environment that depicts and represents a situation, place or experience. Similar to activity displays as they contain vocabulary words associated with specific activities or routines. Elements depicted are the events, persons, objects and related actions that are inherent components of the scene.

Whole message storage and release: Messages are stored as whole units. The individual only needs to select one item to communicate an entire message. This is the easiest level of storage and release strategies.

Word attack: The child's ability to use phonics to decode unfamiliar words

Word by word storage and release: Using individual words in the AAC system that the client can combine to create messages and phrases. This method allows the client to create novel messages but is more difficult than whole message storage and release.

Resources

General Autism Assessments

- Autism Diagnostic Interview (ADI-R) (Lord, Rutter, & LeCouteur, 1994)
- Childhood Autism Rating Scale (CARS) (Schopler, Reichler, & Renner, 1986)
- Developmental Behavior Checklist (Einfeld & Tonge, 1992, 2002)
- Diagnostic Interview for Social and Communication Disorders (DISCO) (Instructions and Question Sets available in Wing, Leekam, Libby, Gould, Larcombe, 2002)
- Vineland Adaptive Behavior Scale (Sparrow, Balla, Cicchetti, Harrison, & Doll, 1984)

Literacy Curricula

- Accessible Literacy Learning Reading Program
<http://www.mayer-johnson.com/all-reading-curriculum>
- First Author Writing Curriculum <http://www.mayer-johnson.com/all-reading-curriculum>
- Children with Disabilities: Reading and Writing the Four-Blocks® Way
<https://www.med.unc.edu/ahs/clds/products>
- Literacy and Augmentative and Alternative Communication
<https://www.amazon.com/Augmentative-Alternative-Communication-Communications-Perspectives/dp/0126503591>

Communication Assessments

- Vineland Adaptive Behavior Scales II (Sparrow, et al., 2008)
- MacArthur Communicative Development Inventory (Bates, et al., 2004)
- Receptive-Expressive Emergent Language Scale (REEL) (Bzoch & League, 1991)
- Autism Diagnostic Observation Schedule (ADOS) (Lord, et al., 2012)
- Communication and Symbolic Behavior Scales (CSBS) (Weatherby & Prizant, 2002)

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